

GIER
SYSTEM LIBRARY

14
Order No. 288

Day in Week

ALGOL Demonstration Program

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GIER SYSTEM LIBRARY
1.4 Demonstration
A/S Regnecentralen
Tove Asmussen
December 1964

Order No. 288

Day in Week -1-

ALGOL Demonstration Program

ABSTRACT

The program calculates the day in week corresponding to a date typed as Arabic or Roman numerals.

Examples:

D A Y i n W E E K
type day, month, year
Arabic or Roman numerals

date: 5.11.64	5.11.1964	Thursday
date: 070363	7. 3.1963	Thursday
date: 13/3/1965	13. 5.1965	Saturday
date: 17-2-015	17. 2. 15	Tuesday
date: 24 7 0065	24. 7. 65	Friday
date: the 5th of 7th-32	5. 7.1932	Tuesday
date: iv x cmmlxv	4.10.1965	Monday
date: XXI.IX.LXV	21. 9. 65	Monday
date: GIER is Grand	1. 1. 500	Friday

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DAY IN WEEK
begin integer i, i1, i2, k, space;
integer array date[1:3];
switch name:= sun, mon, tue, wed, thu, fri, sat;
integer procedure weekday(d, m, y);
integer d, m, y;
begin
  if m>2 then m := m - 3 else
    begin
      m := m + 9;
      y := y - 1
    end;
  d := (146097*(y:100)):4 + (1461*(y - 100*(y:100))):4
    + (153*m + 2):5 + d + 1721119;
  weekday := d - d:7*7 + 2
end weekday;
procedure M(s);
string s;
begin
  writetext(<<  }, s, <<day>);
  goto again
end M;
integer procedure typearab;
begin
  space := space + 1;
  typearab:= if typechar=16 then 0 else if char=0 then 16 else char
end;
integer procedure typeromer;
begin integer i;
  space := space + 1;
  i := if typechar>127 then char - 128 else char;
  typeromer := if i=57 then 1 else
    if i=21 then 5 else
    if i=23 then 10 else
    if i=35 then 50 else
    if i=51 then 100 else
    if i=52 then 500 else
    if i=36 then 1000 else 0
end typeromer;

writetext(writecr,writecr,<<D A Y in W E E K>,writecr,
  <<type day, month, year>, writecr,
  <<Arabic or Roman numerals>, writecr);
again: writetext(writecr,<<date: >);
  space := 0;
  for i:=0, i+1 while i1=-1 do
    begin
      i1 := typearab;
      if i1>9 then
        begin
          if i1>127 then i1 := i1 - 128;
          i1 := if i1=57 then 1 else
            if i1=21 then 5 else
            if i1=23 then 10 else -1;
          if i1=-1 then go to roma
        end
      end;
    end;
  end;

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arabia:
  for k:=1,2,3 do
    begin
      if k>1 then for i:=0,i+1 while i1>9 do i1:= typearab;
      i2 := typearab;
      date[k] := if i2>9 then i1 else i1x10 + i2
    end;
  if i2<10 then
    begin
      i1 := typearab;
      if i1>9 then date[3] := 1900 + date[3]
      else
        begin
          date[3] := 10xdate[3] + i1;
          i1 := typearab;
          if i1<9 then date[3] := 10xdate[3] + i1
        end
      end
    else date[3] := 1900 + date[3];
  go to test;
roma: for k := 1,2,3 do
  begin
    if k>1 then for i:=0, i+1 while i1=0 do i1:= typeromer;
    date[k] := i1;
    for i:=0,i+1 while i2≠0 do
      begin
        i2 := typeromer;
        date[k] := date[k] + (if i2>i1 then i2 - 2x i1 else i2);
        i1 := i2
      end
    end;
  end;
test: i1:= date[1]; k:= date[2]; i1:= date[3];
for i2:= 1 step 1 until 20-space do writechar(0);
write(⟨nd⟩,i,writechar(59),k,writechar(59),
  write(⟨ndddd⟩,i1));
if k<1vk>12vi<1vi>31
  vi>30^(k=4vk=6vk=9vk=11)
  vk=2^(i>29vi>28^-, (i1:400=i1/400vi1:100≠i1/100^i1:4=i1/4)) then
  begin
    writetext(⟨<  ⟩,
      if k<1vk>12 then ⟨<Sorry, no such month⟩
      else if k=2^i=29 then ⟨<This is not a leap-year⟩
      else ⟨<Your day is unheard of⟩);
    goto again
  end;
go to name[weekday(i,k,i1)];
sun: M(⟨<Sun⟩); mon: M(⟨<Mon⟩); tue: M(⟨<Tues⟩);
wed: M(⟨<Wednes⟩); thu: M(⟨<Thurs⟩); fri: M(⟨<Fri⟩);
sat: M(⟨<Satur⟩)
end program for day in week;

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